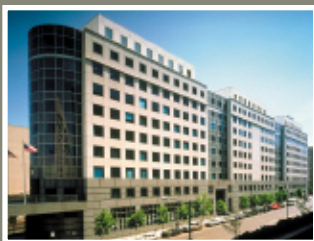




Join us on the second Thursday of every month for a series of "brown bag" seminars, sponsored by the National Renewable Energy Laboratory and the U.S. Department of Energy. Each seminar is held at NREL's Washington office with a videoconference link to Golden, Colorado. Topics focus on new and innovative renewable energy and energy analysis strategies, models, and technologies.



## Energy Analysis Seminar Series

*A "brown bag" analytical seminar series*

### ADVISOR as a Foundation for Vehicle Systems Analysis

**Tony Markel, Senior Engineer**

National Renewable Energy Laboratory

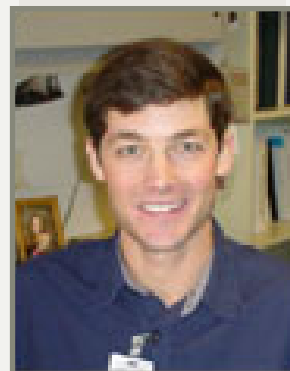
**Thursday, January 8, 2004**

**Noon-1 p.m. (in Washington, D.C.)**

**10-11 a.m. (videoconference in Golden, Colo.)**

When it comes to making intelligent choices about energy-efficient transportation, accurate component simulations are critical to the development of advanced vehicles. ADVISOR™ is a vehicle systems simulation tool developed by the National Renewable Energy Laboratory (NREL) to provide the Department of Energy (DOE) and industry with robust, fast, flexible, and easy-to-use analysis capabilities for hybrid electric vehicles. ADVISOR (Advanced Vehicle Simulator) has the capability to predict fuel consumption, emissions, and performance of a wide spectrum of hybrid electric, electric, and conventional vehicle technologies. For the past five years, NREL has distributed several versions of the software for free to more than 8,000 users worldwide. Recent applications have looked at the effects of ambient conditions on performance and design implications of fuel cell hybrid vehicles. Markel will give a live demonstration of the tool during the presentation.

**Tony Markel** is a senior engineer and currently serves as task leader for Vehicle Systems Analysis in the Center for Transportation Technologies and Systems (CTTS) at NREL. Markel, who has been at the Laboratory since August 1996, leads a team of engineers providing systems analysis results and capabilities to DOE, academia, and industry. He is currently focusing on research for the advancement of fuel cell systems and the application of optimization and distributed computing tools to analyses in support of the FreedomCAR program. Markel received his bachelor's in mechanical engineering from Oakland University in 1995, and he is currently working toward a master's from the University of Colorado, Boulder.



**Tony Markel**

### Golden, Colo., information

1829 Denver West Drive, Golden, Colorado  
Building 27, Conference Room 230 A/B

Please contact Lynne Fenn at [lynne\\_fenn@nrel.gov](mailto:lynne_fenn@nrel.gov) or  
303-384-7439

### Washington, D.C., information

901 D Street SW (also the Aerospace Building, 370 L'Enfant Promenade), adjacent to the Forrestal Building

Please contact Wanda Addison at [wanda\\_addison@nrel.gov](mailto:wanda_addison@nrel.gov)  
or 202-646-5278